

**ANOTHER CALCIPHILIOUS *PANDANUS*
FROM THE MASSIF DE L'ANKARANA,
NORTH MADAGASCAR (*PANDANACEAE*)**

by Benjamin C. STONE

RÉSUMÉ : Description de *Pandanus pristis* sp. nov., provenant, comme le *P. biceps* Stone et Guillaumet, du massif karstique de l'Ankarana, au nord-ouest de Madagascar, entre Ambilobe et Diego-Suarez. La plante mâle a fleuri au Jardin Botanique de Munich (Allemagne) en nov. 1870; l'inflorescence mâle est petite, de forme et de structure semblables à celles de *P. biceps*; le fruit manque, mais il est probable que *P. pristis* et *P. biceps* sont des espèces affines, appartenant à la section *Mammillarisia*.

SUMMARY : The new species *Pandanus pristis* Stone is described; it occurs in the same limestone mountains, Ankarana, of North-West Madagascar, as the recently described *P. biceps* Stone et Guillaumet, and has similar staminate inflorescences. The plant on which the new species is based flowered in the Botanic Gardens of Munich in Nov. 1970. Fruit of this species is still unknown; however, it is probable that it is a close relative of *P. biceps* and that, like the latter, it belongs to Sect. *Mammillarisia*.

The calcareous karst massif of Ankarana, above Diego Suarez in the extreme north-west of Madagascar, is already known as the home of several very interesting species, among which stands *Pandanus biceps* Stone et Guillaumet, which was only recently discovered and described (STONE et GUILLAUMET, 1970). Now a second species of *Pandanus* from this same locality has been collected, first by Dr. Werner RAUH, of the University of Heidelberg, and also by J.-L. GUILLAUMET. Dr. RAUH brought living material back to Germany and this recently flowered in the Botanischer Garten, München. A specimen was obtained, and photographs taken, by Joseph BOGNER, and sent to me for study. It is unfortunate that we have as yet no fruits but the vegetative characters are so distinctive that it is abundantly clear that an undescribed species was represented, as I have already mentioned when citing the sterile collection made by GUILLAUMET in 1968 (STONE, 1970). The striking and unusual feature of this species is the proportionally very large marginal teeth of the leaves (which are, for the genus, comparatively small), and the highly unusual character of the most marginal nerves, two or three of which invaginate into the base of each tooth, forming a low arch or pair of arches. The

staminate inflorescence is in general quite similar to that of *Pandanus biceps*, but the leaves are so different, in the characters mentioned, and also in the virtually unarmed midribs, that they should easily be distinguished in nature even when flowers and fruits are absent.

***Pandanus pristis* B. C. Stone, sp. nov.**

Frutex vel arbor perparva calciphila, ad 1-2 m alto, stipite decumbente pauciramoso, radicis aereis grilliformibus eminento; foliis 30-40 cm longis, anguste oblanceolato-spathulatis, supra vel ad medium c. 4 cm latis, basim versus attenuatis ad 2 cm latis, apicem versus acuminatis subcaudatisque, ferociter armatis, dentibus magnis deltoidels rectis vel antrorsis usque ad 8-9 (-10) mm longis et 4-5 mm latis, 1-3 nervis marginalibus in base denti invaginantibus; costa media dorso basem versus inerme, apicem versus (et in acumen) minute remoteque spinuloso-denticulatis, denticulis antrorsis usque ad 1-1,5 mm longis. Inflorescentia mascula terminalis, bracteatis, racemosopiscatis, bracteis inferioribus foliaceis, sed brevioribus (c. 15 cm longis), superioribus decrescentibus pallide albo-brunneis, in basi excavato-navicularibus, abrupte acuminato-caudatis, in margine et costa (apicem versus) denticulatis, dentibus 1-2 cm longis, subdense confertis; spicis 9 inferioribus usque ad 3 cm longis, superioribus brevioribus; staminibus (fere 3 vel 5, interdum 6 vel 9) ad apicem columni aggregatis, columna c. 2 mm longo, filamentis c. 0,5 mm longis vel obsoletis, antheris c. 3 mm longis, oblongis, obtusis, perbreve apiculatis, apiculo 0,2 mm longo vel breviori.

TYPUS : *J. Bogner 351*, stam. fl. in Hort. Bot. München, 20 nov. 1970, planta ex montibus calcareis Ankarana in Madagascar prope Diego Suarez, orig. leg. Dr. Werner RAUH (holo-, in herb. auctoris; iso-, M).

ADDITIONAL SPECIMEN : Madagascar, Massif de l'Ankarana de Diego-Suarez, roches calcaires, 3 Aug. 1968, *J.-L. Guillaumet 2177* (KLU!).



FIG. 1. — *Pandanus pristis* B. C. Stone: Habit. After field sketches by J.-L. GUILLAUMET.

This is a shrub or miniature tree of the limestone mountains of Ankarana in the north-west of Madagascar between Ambilobe and Diego Suarez. From the drawings of M. GUILLAUMET, and the photos taken by Mr. BOGNER, it appears that the trunk soon becomes decumbent or horizontal and it is supported on long stilt-roots (Fig. 1). The rather small

leaves, which in the specimens available reach 40,5 cm long (but may somewhat exceed this in nature), are oblanceolate-spathulate, or almost elliptic, but very narrowly so, about ten times longer than wide; the widest point is a little beyond or about the middle, and the base is narrowed, while

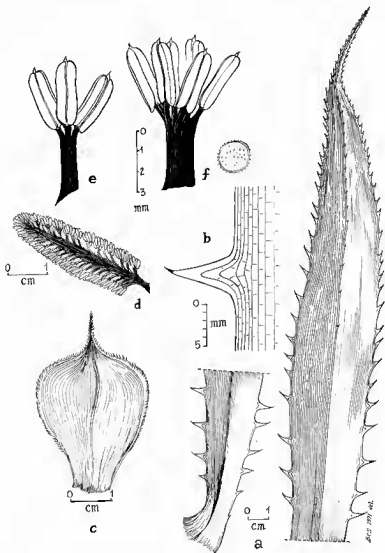


FIG. 2. — *Pandanus pritis* B. C. Stone : Details of leaf and staminate inflorescence. a, leaf (dorsal side); b, marginal tooth, enlarged; note inarched nerves; c, inflorescence bract; d, single staminate spike; e, staminate phalange of 3 stamens; f, staminate phalange of 6 stamens and pollen grain much enlarged.



FIG. 3. — *Pandanus pristic* B. C. Stone ; Photo of plant in the Botanic Garden, University of Munchen (courtesy of J. BOGNER).

the apex is acuminate and more or less caudate. The unusually large marginal teeth reach nearly 1 cm long and are about half as wide; on adult leaves these teeth are very conspicuous, and toward the base of the leaf,

they project at right angles, though more distally they are directed forward. One or two, or sometimes three, of the marginal nerves enter the base of each tooth forming acute arches; this is an extremely unusual (perhaps unique) feature of this species (Fig. 2*b*). The midrib however is by contrast more modestly armed with smaller, more slender antrorse teeth which occur only toward the leaf apex and on the acumen, while the basal half or so is entire.

The staminate inflorescence is a small terminal compact raceme of about 9 spikes, and reaches a length of some 10 cm. Each spike is subtended by a small brownish-white bract; the slender rachis bears in addition 2 or 3 sterile foliaceous bracts. These are leaflike, but shorter than the foliage leaves, and have considerably smaller and more crowded teeth. The floral bracts, which successively decrease in length but proportionally increase in length: width ratio upwards, have an expanded boat-shaped base, and a short very abruptly caudate apex; on the uppermost bracts this is nearly obsolete. The uppermost bracts are about 22-24 mm long and as wide (Fig. 2*c*). The stamens are borne in small phalanges, the stemonophore topped by about 6 anthers on very short filaments. The pollen grains are sphaeroidal and the exine is minutely spinuliferous. This structure, and that of the leaves, suggests that this species is a close relative of *P. biceps* and that it belongs in Sect. *Mammillarisia*. The epidermis is of a simple type, the stomata without elaborate papillae, and the epidermal cells smooth (this data has been obtained by Dr. KIM-LANG HUYNH of the Université de Neuchâtel), which corresponds well with the anatomy of *P. mammillaris*, *P. vandamii*, and *P. pervilleanus*, all of which are Malagasy species of Sect. *Mammillarisia*.

P. pristis and *P. biceps* may be sympatric; both are apparently calciphile endemics of the Massif de l'Ankarana.

The name is based on the similarity in appearance of the leaves of this pandanus to the saw-toothed "spear" of the sawfish (genus *Pristis*); I thank Prof. A. J. BERRY of the Zoology Division, University of Malaya, for help in this matter.

I am grateful to Mr. Joseph BOGNER for obtaining the holotype collection, and of course indirectly to Dr. RAUH; and to M. GUILLAUMET for his collection (no. 2177) sent earlier.

REFERENCES

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